



Integrated Pest Management in Schools Project Final Report



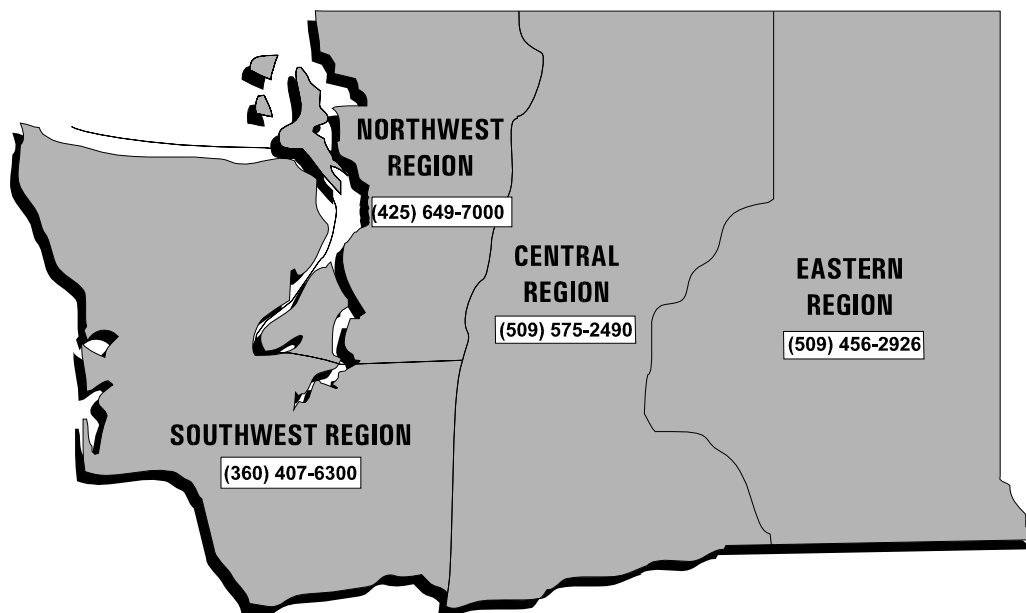
Department of Ecology
Hazardous Waste and Toxics Reduction Program

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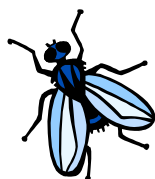
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INTRODUCTION

The Washington State Department of Ecology's Hazardous Waste and Toxics Reduction Program conducted a pilot project during the 1996-1997 school year to promote the use of Integrated Pest Management (IPM) in elementary and secondary schools. Schools that volunteered to receive technical assistance were visited by Ecology staff and/or volunteers trained in the fundamentals of IPM. Direct visits were made to 65 schools in 12 districts. District management personnel representing 300 schools in these districts were also contacted or visited.

This report will describe the background, methodology and conclusions of the project.

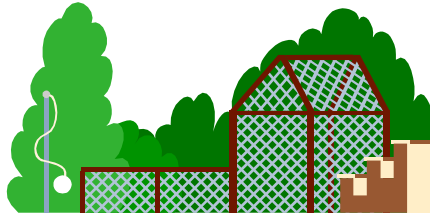
Integrated Pest Management has been defined by the Washington State legislature as "a coordinated decision-making and action process that uses the most appropriate pest control methods and strategy in an environmentally and economically sound manner to meet agency programmatic pest management objectives."

The elements of integrated pest management include:

- ☐ Preventing pest problems;
- ☐ Monitoring for the presence of pests and pest damage;
- ☐ Establishing the density of the pest population, (that may be set at zero), that can be tolerated or correlated with a damage level sufficient to warrant treatment of the problem based on health, public safety, economic, or aesthetic thresholds;
- ☐ Treating pest problems to reduce populations below those levels established by damage thresholds using strategies that may include biological, cultural, mechanical, and chemical control methods and that must consider human health, ecological impact, feasibility, and cost-effectiveness; and
- ☐ Evaluating the effects and efficacy of pest treatments.

PROJECT BACKGROUND

Children's nervous systems, immune systems, and other developing organs are particularly sensitive to toxic substances such as pesticides. Their playing habits (such as putting objects in



their mouths) cause them greater pesticide exposures than adults. And since schools house large numbers of children for long periods of time, potential pesticide exposure at schools is of obvious

concern. Furthermore, a 1993 Department of Ecology study indicated that 5 out of 7 schools visited for the study had environmental problems involving waste pesticide products, pesticide rinse water and wash water wastes, and spills or intentional environmental discharges of pesticide wastes.

Since Integrated Pest Management is a method aimed at reducing not just pesticide use per se, but **exposure** to pesticides, a project aimed at introducing IPM into primary and secondary schools was judged to be a good approach for addressing one potential site of pesticide exposure.

The project goals aimed to balance concern for human and environmental safety with a realistic expectation of what could be accomplished by voluntary school efforts to reduce pesticide use risks. The IPM goals and practices that the project advocated had to meet both the needs of the school staff and be relatively easy for them to voluntarily implement.

PROJECT DESCRIPTION

The IPM in Schools Project was designed to promote awareness and use of IPM practices among school staff and administrators making decisions about, or carrying out, pest control measures within school buildings or on school grounds. The original goals were to inform school officials and support staff about methods of pest control, to train the appropriate school employees to incorporate IPM principals into their daily work, and to track and report a measurable reduction in pesticide use. (The last goal was dropped partway through the project because it was determined to be too difficult to obtain information on actual pesticide usage.)



In order to design the most effective methods for carrying the IPM message to schools, two stakeholder meetings were held in March, 1996. The first meeting brought together several principals and maintenance staff supervisors from two school districts, a pest control company representative and a parent. The second meeting was with the on-going IPM in Schools Workgroup, which consists of representatives of state and federal agencies and citizens involved in pesticide issues.

Based on feedback obtained at the two meetings, Ecology decided to develop a project that would:

- ☐ Develop a pest management checklist and set of recommendations for IPM in school buildings and grounds;
- ☐ Develop a set of IPM reference materials;
- ☐ Train Master Gardener volunteers on the basics of IPM and how to use the pest management checklist for doing school site visits;
- ☐ Have the volunteers visit schools and talk to the maintenance staff about IPM; and
- ☐ Evaluate IPM behavior changes of school staff by doing a post-visit survey one year later.

The project set an initial goal of visiting 10% of the schools in the state (185 out of 1850). In order to distribute these visits throughout the state, two counties in eastern Washington and two counties in western Washington were chosen; Spokane, Yakima, Pierce and King. The actual number of schools visited during the project was 65. The main reasons for the reduced number of school visits were the difficulty in actually scheduling the visits and fewer than expected volunteers that were comfortable conducting the visits on their own.

VOLUNTEERS

The main volunteer group that was chosen to assist in the project was the Washington State University Cooperative Extension Master Gardeners program. Additional volunteers were recruited from the American Lung Association's Master Home Environmentalist (MHE) Program to help with the school visits in



King County. The MHE program consists of a group of volunteers trained to perform environmental assessments and overall chemical use reduction education to homeowners and renters in their communities.

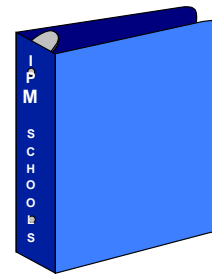
Twenty-five Master Gardeners and nine Master Home Environmentalists agreed to participate in the project.

Training of the volunteers was split into three sessions. The first two were classroom training sessions (one mostly technical, one mostly procedural). The third training session was a school visit where a trainer accompanied the volunteer.

REFERENCE MATERIALS

Reference Binders

Two reference binders were developed for the schools: 'Integrated Pest Management for School Buildings' and 'Integrated Pest Management for School Grounds'.



One of the first project activities was researching the common structural pests that could cause problems in Washington schools. Based on this research the project team decided to address ten structural pests: termites, carpenter ants, powder post beetles, head lice, cockroaches, fleas, flies, mice, rats, and yellow jackets. During site visits, however, it became apparent that non-carpenter ants were also a major problem in many schools and so they were addressed as well.

The written reference materials that Ecology developed for structural pest control emphasized pest control activities that school staff could undertake to make it harder for pests to get established. The reference materials also discussed what pest control professionals do and included some basic information on the biology of pests related to pest prevention. The Integrated Pest Management for School Buildings binder also included sample IPM policies and materials from other state agencies and an IPM consultant.

The 'Integrated Pest Management for School Grounds' binder covered grounds-related pest management issues. Along with

Department of Ecology publications, the materials in these binders were mainly obtained from WSU Cooperative Extension, Washington Toxics Coalition and the Thurston County Local Hazardous Waste Program.

“Calculating the True Costs of Pest Control” Document

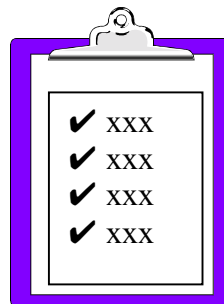
Fear of IPM program costs is a major obstacle to IPM implementation. School business officials, administrators and maintenance program personnel commonly report that they believe IPM will cost more than conventional pest control programs. However, when the hidden and contingent costs of conventional programs (e.g., Future liability, public relations, occupational insurance) are taken into account, IPM is often a relative bargain. Yet little information has been available to help schools understand, calculate and compare the total costs of their pest management operations.

“Calculating the True Costs of Pest Control” was developed to help budget and administrative decision-makers make an informed decision when considering approval of an IPM Program for their facilities. It provides a format to identify and calculate activity-based costs of current pest control operations, and compare those with the costs of an IPM Program.

SCHOOL SITE VISIT PROCESS

Pilot visits

Before embarking on the actual school site visits, the project team tested the checklists, reference materials and site visit “script” through a number of pilot visits. The overall result of the pilot visits was to change the focus of the site visit from diagnosing and giving remedies for specific pest problems to providing information on basic IPM methods.



Pre-visit surveys

Surveys were developed to gather pre-site visit information from three groups: principals, building maintenance staff, and grounds maintenance staff. The surveys were designed to serve several purposes: obtain some general information about the school and the pest problems at the school; determine what current pest

management practices were being used; and, determine the respondents' attitudes towards pests and pest management practices.

School visits

School visits generally began with a short meeting with the principal to introduce her/him to the project.

Then the volunteer met with the school custodian and went through the IPM reference materials that had been developed. This meeting was followed by a walk-through of the school with the custodian. The



focus was on those areas where there were current pest problems or there had been problems in the past. The volunteer completed a "Checklist" as the walk-through was conducted. The visit ended with another short meeting with the custodian so that any questions could be answered.

It was originally thought that the grounds portion of the visit could be handled in much the same way as the building part. However, it was discovered that many school districts handle the two areas quite differently. Whereas most schools have at least one custodian devoted to that school, grounds maintenance is typically done by a crew that serves the entire district.

Another situation that occurred from time to time was that one person supervised all the grounds and building maintenance staffs in a particular school district. These district supervisors generally preferred to have a single presentation at either one school or the district office.

Common pests

The pests that were reported most frequently during the school site visits were: yellow jackets, rodents, non-carpenter ants, head lice (in elementary schools), cockroaches, birds, flies, fleas, carpenter ants and termites.

FOLLOW-UP

Follow-up letters were written to the chief custodian and principal of each school that was visited or that returned a survey to volunteer for a visit. The letters outlined the major pest problems that were found at almost all schools, mentioned some IPM

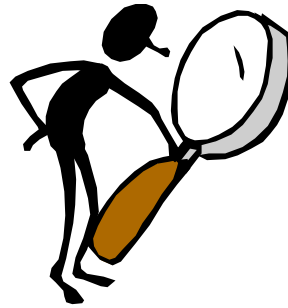
solutions that are appropriate at the level of school staff, emphasized policy development, and offered further help and the loan of a set of IPM for Schools videos.

SURVEY AND ANALYSIS

To help evaluate the effectiveness of the visits, a follow-up survey was sent to participants in May, 1998. The survey aimed at determining if there had been changes in the knowledge, behavior or attitudes of school staff.

This was done by asking questions similar to those on the original survey plus questions about: whether the school had developed or was

developing an IPM policy; whether the written reference materials were used; whether the visits were helpful; and what their assessment was of the overall value of the project to their school. Following are some of the results of the follow-up survey:



There was a 35% response rate.

According to the survey respondents, the IPM in Schools visits were useful. About 76% of respondents remembered participating in the visits. Of those remembering the visits, all but one characterized the visits as useful.

Participants were asked whether their school had made any changes since participating in technical assistance visits. Fourteen respondents indicated they had made changes, this represents 42% of all visits. Eleven respondents, or one third, said that they had made specific positive moves towards utilizing IPM at their school. Four respondents, 12%, said they were unsuccessful in making a switch to IPM.

Examples of changes made:

“Reduced or eliminated the use of chemicals. Started asking maintenance about chemicals they use and environmental risks. Notify parents, students and staff when pesticides are being used.”

“Stopped using chemicals - replaced with mice traps.”

“To make a non-chemical approach rather than using chemicals first.”

“Yes, we don’t use spray chemicals in the building unless all else has failed. No outside chemical use except on weekends & prior notification.”

“Yes. In all situations we try all other methods before resorting to using chemicals for weed control, the grounds crew only sprays on weekends and we are given ample notice.”

“Yes, I think about the situation before running to use chemicals.”

Informational Binders

The survey found that most of the informational binders left at the schools had been utilized. Sixty-nine percent of respondents said they still had their binders. Ninety percent of the respondents who kept binders had used them. The main purpose of the binders had been to look up a pest identification and treatment. The binders were also used to find out pesticide information, telephone numbers, web site addresses and to read sample IPM policies.

IPM Policies

Only three respondents indicated that their school had an IPM policy, none of them written.

Notification

Fifty-six percent of respondents indicated that they notify people of pesticide use at the school. The others either did not know of a notification policy, or said no pesticide use occurred in the last year.

Response to Questions

Respondents were asked whether they could respond to questions or concerns about pesticide use. Twenty-five percent said that they can always respond, 44% can sometimes respond and eight percent said they’d never been asked.

Pest Experience

Twenty-one respondents (64%) indicated that they had recently dealt with a pest problem. Ants were the predominate pest mentioned; eleven respondents had treated an ant problem. There

were nine incidents of rats or mice, and two incidents each of head lice, cockroaches and wasps. There was one report each of infestation by silver fish, dandelions, birds and bees. To treat these pest problems fourteen IPM strategies were used, while thirteen respondents said they used chemicals. Six respondents used a combination of methods to remove the pest.

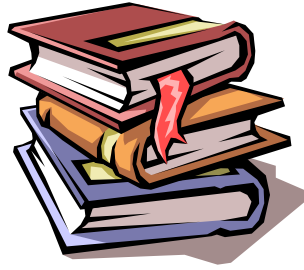
OBSERVATIONS AND RECOMMENDATIONS

Agencies or organizations who are planning to embark on an IPM in Schools project might want to consider the following observations and recommendations based on the experience of this project:

- ✓ **Focus on the cost effectiveness of IPM in a school setting.**
Building and Grounds Maintenance supervisors and their staffs were the main audience for this IPM project. The supervisors were interested in this project and in reducing toxic exposures, but they have budgets for only the most basic repairs and minimal staffs. Since any IPM changes will have to come out of normal maintenance budgets, money for retrofitting landscapes or buildings to make them more pest resistant is not likely to be available.
- ✓ **Incorporate suggestions on how to work with union issues.**
Several building maintenance staff mentioned union difficulties because building repairs (even caulking cracks to keep insects out) are supposed to be done by carpenters or plumbers.
- ✓ **Training for building staff should focus on how to reduce pest habitat through sanitation and repair.**
Building Maintenance staff generally do a good job with basic sanitation and maintenance, but cannot be expected to recognize or diagnose many pest problems. Large infestations of rodents, ants and wood destroying insects are certainly beyond their capabilities.

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- ✓ **Emphasize the special hazards of over-the-counter pesticides when used in schools.**
The project site visits revealed that most school building pesticide applications are made by either buying an over-the-counter pesticide product, such as ant spray at a hardware store, or calling in an outside pesticide contractor.
 - ✓ **The approach to take in any future school IPM project that includes grounds maintenance should be completely re-analyzed.**
Grounds Maintenance staff often have the training to make landscape pest diagnosis and some have training in IPM methods. What they don't have are landscapes designed for pest resistance or low chemical maintenance.
 - ✓ **Project staff should already be knowledgeable about IPM, rather than attempting to recruit, train, and organize volunteers.**
The school site visits revealed that school staff did not seem to be put off by the project's association with Ecology (a regulatory agency). During project planning, it was thought that volunteers were necessary to downplay the Ecology connection and accomplish a large number of school visits within a few months. But in retrospect, two interns or temporaries trained in landscape and structural IPM would have been more effective. The Ecology project staff person (who did the volunteer coordination) felt that volunteers were not needed, and that she could have visited as many or more schools than the volunteers did, if she did not have to spend so much time trying to coordinate and train the volunteers.

**THE FOLLOWING
IPM IN SCHOOLS
PUBLICATIONS
ARE AVAILABLE :**



*Integrated Pest Management in Schools Project: Carpenter
Ants* (publication # 97-420)

Integrated Pest Management in Schools Project: Fleas
(publication # 97-421)

Integrated Pest Management in Schools Project: Flies
(publication # 97-422)

Integrated Pest Management in Schools Project: Head Lice
(publication # 97-423)

*Integrated Pest Management in Schools Project:
Cockroaches* (publication # 97-424)

Integrated Pest Management in Schools Project: Rodents
(publication # 97-425)

Integrated Pest Management in Schools Project: Termites
(publication # 97-426)

*Integrated Pest Management in Schools Project:
Yellowjackets and Other Wasps* (publication # 97-427)

*Integrated Pest Management in Schools Project: Nuisance
Ants* (publication # 97-428)

Calculating the True Costs of Pest Control (publication #
99-433)

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